

**WISCONSIN MODIFICATIONS**  
**Recommendations**  
**for**  
**2006 INTERNATIONAL MECHANICAL CODE (IMC)**  
**(MECHANICAL TECHNICAL REQUIREMENTS)**

	Wisconsin Modification	Recommendation	Justification
64.0202 Definitions	Revise the definition of “approved” to reflect the department’s oversight. Add a definition for the term “air change”. This term is used in other Wisconsin modifications to IMC chapter 4, Ventilation. Add a definition for the term “air change rate”. This term is used in other Wisconsin modifications to IMC chapter 4, Ventilation. Add a definition for the term “DHFS”. This term is used in other Wisconsin modifications to IMC chapters 6 and 8. Add a definition for the term “spot heating”. This term is used in other Wisconsin modifications to IMC 309.1. Revise the definition of “unusually tight construction” to coordinate that under fuel gas provisions.	Keep      Keep, but revise	Needed for use with other Wisconsin modifications.      The definition in Comm 65.0202 (1) has been deleted.
64.0300 Operating Room Inlets and Outlets	Add a provision concerning the location of air intakes and outlets in operating rooms and autopsies.	Keep	The IMC has no specific provisions for operating and autopsy rooms. Now numbered Comm 64.0603(2).
64.0301(1) Ch. Comm 63	Add a note referencing the existence of additional energy conserving standards promulgated under ch. Comm 63.	Keep	Refers reader to additional requirements.
64.0301(2) Listing and Labeling	IMC 301.4 requires all appliances to be listed and labeled unless approved as a "modification " by the code official under IMC 105. The current process for department approval of unlisted equipment should be retained as an additional option.	Keep for now	Matter may be covered under s. Comm 61.50. If kept, “appliances” should be used in both pars. (a) and (b).
64.0301(3) Electrical Code	Revise 301.7 to recognize the existence of electrical standards promulgated under ch. Comm 16.	Delete	By a Wisconsin modification, “ICC Electrical Code” is defined to be ch. Comm 16.

<b>Wisconsin Modification</b>		<b>Recommendation</b>	<b>Justification</b>
64.0301(4) Plumbing Code	Revise 301.8 to recognize the existence of plumbing standards promulgated under chs. Comm 81-87.	Delete	By a Wisconsin modification, "ICC Plumbing Code" is defined to be chs. Comm 81-87.
64.0304 Installation	Add a note referencing s. Comm 61.03(2) which provides additional direction on the application of code provisions, adopted standard provisions and manufacturer's instructions.	Keep	Refers reader to additional information on the application of different requirements and the most restrictive requirements.
64.0306 Access and Service Space	Add an exception for providing service platforms for roof top fans.	Keep	Exempts installations consisting of fans only.
64.0309(1) Heating System Design	Do not require all spaces to have equipment capable of maintaining an indoor temperature of 68°F. Allow occupancies that are currently allowed to have minimum indoor temperatures of below 67°F to remain. These are industrial, storage, athletic, garage and kitchen uses.	Revise – retain modification establishing various minimum temperatures for various occupancies – eliminate or revise modification pertaining to operate/maintaining minimum temperature.	As currently worded, the modification does not address setting thermostats at or below the minimum temperatures – e.g. setback thermostats at night for residential occupancies.
64.0309(2) Spot Heating	Add a rule allowing spot heating.	Keep	Delete if the previous modification truly prohibits "spot heating" of occupied space.
64.0309(3) Seasonal Buildings	Add an exception of the need of a heating for certain "seasonal" occupancies that operate only during the "summer" (May 15-Sept. 15).	Keep; change dates to "May 1 through October 15"	IMC's language about active or passive space heating does not acknowledge seasonal occupancies.
64.0312 Energy Conservation Reference	Add a note referencing the existence of additional energy conserving standards promulgated under ch. Comm 63.	Keep	Refers reader to additional related requirements.
64.0313(1) Ventilation Balancing	Keep the current requirement for final testing and balancing of the HVAC system.	Keep	Balancing addressed under 403.3.4 is not sufficient.
64.0313(2) Control Testing		Keep	Not sufficiently covered in IMC.
64.0313(3) Operation and Maintenance Manual	Maintain the Wisconsin requirement for the designer or installer to provide the owner with written instructions for the operation and maintenance of the system and equipment.	Keep	Not sufficiently covered in IMC.

<b>Wisconsin Modification</b>		<b>Recommendation</b>	<b>Justification</b>
64.0401(1) Ventilation	Replace IMC 401.2 with ss. Comm 64.05 (with respect to where natural ventilation is allowed) and 64.40. See also revisions to Table 403.3.		
64.0401(2) Ventilation Required	IMC 401.3 only requires ventilation to be provided when a space is occupied. Replace IMC 401.3 with text similar to Comm 64.06 (1) to require mechanical ventilation systems to provide a continuous source of outside air to all areas during periods of occupancy and s. Comm 64.08 (3) so that required building exhaust ventilating systems operate continuously when people are in the building. Add an exception to allow rooms with 2 or fewer toilet fixtures only to have exhaust when occupied. The exhaust fan can then be run off the light switch.		
64.0401(3) Exit Ventilation	Do not adopt 2000 IMC 401.4. Replace with 1998 ver. IMC 401.4 text, which allows the building code to establish smokeproofing for vestibules.		
64.0401(4) Intake Openings	<p>Adopt IMC 401.5 with additions. Include portions of ss. Comm 64.07, 64.39 and 64.40:</p> <p>The lowest side of outside air intake openings shall be located at least 12 inches above outside grade, above adjoining roof surfaces, or above the bottom of an areaway.</p> <p>Add exceptions to the 10-foot setback rule:</p> <p>Exhaust vents of 100 cfm or less shall be located at least 12 inches, measured in any direction, from doors or openable windows.</p> <p>Does not apply to intakes for combustion air or short-cycle hoods.</p> <p>The 10-foot minimum separation does not apply to the intake and exhaust of a factory-packaged rooftop unit provided nothing restricts airflow around the unit. The exhaust and intake of the unit shall be located to minimize contamination of outside air.</p>		

<b>Wisconsin Modification</b>		<b>Recommendation</b>	<b>Justification</b>
64.0401(4) Intake Openings cont'd	Product of combustion outlets of direct vent sealed combustion chamber appliance vents shall be located at least 12 inches, measured in any direction, from doors or openable windows.  Locate ventilation discharge to avoid contamination of outside air supply.		
64.0401(5) Exhaust Openings	Terminate gravity ventilation 2 feet above portions of building within 10 feet.  Terminate roof barometric relief vents 2 feet above the roof surface.		
64.0402 Natural Ventilation	Replace IMC 401.2 with ss. Comm 64.05 (with respect to where natural ventilation is allowed) and 64.40. See also revisions to Table 403.3.		
64.0403(1) Ventilation	Delete the portion of IMC 403.1 that requires supply air to be delivered within boundaries measured at 3 inches and 72 inches above the floor and 24 inches from the enclosing walls.		
64.0403(2) Outdoor Air	Replace with 1998 IMC 403.2 that allows the option of providing ventilation by engineered systems.		
64.0403(3) Recirculation Prohibition	Replace the cross reference to the substituted temperature and ventilation table		
64.0403(4) Air Circulation	Add specific provisions relating to hospitals and surgery centers.		
64.0403(5) Air Transfer	Replace the cross reference to the substituted temperature and ventilation table		
64.0403(6)(a) Ventilation Rates	Keep provisions of s. Comm 64.05 (4) to allow outdoor air requirements to be waived where: The requirement for outdoor air is less than 5% of the minimum required air changes per hour; and In large volume spaces containing 5,000 or more cubic feet per occupant.		

<b>Wisconsin Modification</b>		<b>Recommendation</b>	<b>Justification</b>
64.0403(6)(a) Ventilation Rates cont'd	<p>Adopt IMC Table 403.3 with various changes and add notes to provide for further clarification.</p> <p>Most changes recommended for Table 403.3 are to add occupancies, such as factories/industrial, where no similar occupancy exists and make similar uses/occupancies consistent internally within the table.</p> <p>The amount of outside air is recommended to be changed to 7.5 cfm/person (vs. 15 to 60 cfm/person).</p> <p>Garage ventilation is recommended to be changed from 1.5 cfm/sf to 0.5 cfm/sf of exhaust. Keep Wisconsin text from s. Comm 64.54 so that natural or mechanical ventilation need not be provided in warehouses and cold storage buildings.</p>		
64.0403(6)(b)	Add provisions for delineating adjacent spaces with differing ventilation requirements.		
64.0403(6)(c)1	Add exceptions for small toilet rooms.		
64.0403(6)(c)2	Add exceptions for janitor closets.		
64.0403(6)(c)3	Add the following requirement: Mechanically ventilated toilet rooms and janitor closets shall be provided with negative pressure relative to adjacent areas. If supply air is provided to toilet rooms or janitor closets, the exhaust must also be provided simultaneously.		
64.0403(6)(c)4	Add provisions for chemical and septic toilets		
64.0403(6)(c)5	Keep Wisconsin s. Comm 64.66 which allows for a reduction to 1 CFM/SF pool area when 60% relative humidity is maintained.		
64.0403(6)(c)6	Healthcare entries are replaced by AIA guidelines.		

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64.0403(7) Ventilation Operation	Allow the number of occupants that are assumed in a system design to vary from what is specified in Table 403.3 provided there is a justification acceptable to the department to provide that a different number of occupants is reasonable.		
64.0403(8) Common Ventilation System	Keep s. Comm 64.06 (2) to specify a minimum air change rate as an alternative to 403.3.2.		
64.0403(9) Temperature and Ventilation Table	<p>Adopt IMC Table 403.3 with various changes and add notes to provide for further clarification.</p> <p>Most changes recommended for Table 403.3 are to add occupancies, such as factories/industrial, where no similar occupancy exists and make similar uses/occupancies consistent internally within the table.</p> <p>Garage ventilation is recommended to be changed from 1.5 cfm/sf to 0.5 cfm/sf of exhaust. Modify the exception from mechanical ventilation requirements so that the criterion is <math>\leq 6</math> vehicles, rather than <math>\leq 4</math> cars or trucks of <math>\leq</math> one ton capacity. Only enclosed parking garages need mechanical ventilation systems, but the term "enclosed" is not defined. Define enclosed as having less than 30% open wall area.</p>		
64.0404(1) Parking Garage Ventilation	Add the following requirements to IMC 403.4: Operate the exhaust for a minimum of 5 hrs./day; maintain 1 ppm NO <sub>2</sub> or less where diesel fuel vehicles are stored; and maintain negative or neutral pressure relative to other spaces. Also change the criteria for automatic system operation from 25 ppm CO to 35 ppm. Change the minimum ventilation rate to be consistent with changes made to Table 403.		

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64.0404(2) Minimum Garage Ventilation	Revised to relative the minimum ventilation based upon the number of occupants versus the garage area.		
64.0404(3) Adjacent Garage Spaces	Modify IMC 404.3 to allow occupied spaces accessory to public garages to be maintained at a positive or neutral pressure relative to the garage.		
64.0501 Exhaust within Dwelling Units	Added an exception allowing positive pressure situation of required exhausted spaces within dwelling units.	Keep; change IMC section number to 501.3	Not sufficiently covered in IMC.
64.0502 Exhaust Systems	IMC 502.1 and 401.7 both require exhaust systems to be provided when stationary local sources emit enough contamination to be "irritating or injurious to health or safety." Adopt IMC 502.1 and 401.7 with <u>deletion</u> of term 'irritating' and only require an exhaust system if the contamination level will be injurious to health or safety.	Keep	The IMC language would require the HVAC system to accommodate those individuals with high sensitivity to contaminants. The code should be a minimum standard and the IMC wording may result in significant litigious action.
64.0506(1) Ventilation Cross Reference	Added informational note alerting people to kitchen space exhaust provisions.	Delete	IMC 506 pertains to sources of contamination, not space requirements; Note is not needed.
64.0506(2)(a) Kitchen Exhaust Ducts	The IMC allows only welds or brazes and listed systems to seal duct joints. The code should also allow joints to be made with bolted flanges and any other means to provide a liquid-tight seal at 1500°F.	Keep; change IMC section number to 506.3.2	It's not possible to physically weld in some locations, i.e., near a ceiling. Allowing any system that can meet the performance requirement will provide more flexibility and lower costs. IMC wording needed clarification.  Covered under IMC section 506.5.
64.0506(2)(b)	Corrected the terminology describing the type of permissible joints.	Keep; change IMC section number to 506.3.2.1	
64.0506(2)(c)	Fans serving commercial kitchen hoods should be required to be listed for use with grease-laden air.	Delete	
64.0507 Kitchen Exhaust Capacity	Added a modification allowing the exhaust hood capacity to be "engineered".	Keep	Allows the option of an engineered system.
64.0603 DHFS Rule Cross References	Created references alerting people to other state regulations applying to health care facilities.	Keep	Refers reader to other applicable state regulations.

<b>Wisconsin Modification</b>		<b>Recommendation</b>	<b>Justification</b>
64.0604(1) Health Care Ducts	Added specific insulation provisions for health care facilities.	Keep	Not sufficiently covered in IMC.
64.0604(2) Duct Lining	The IMC prohibits the installation of duct lining within 6 inches of a heater. The code should allow lesser clearances if they are allowed by the lining listing.	Keep	Although the reduction in clearances for listed “equipment” (by definition would include duct liners) is already covered under 308, the council recommended keeping this rule for clarification.
64.0605(1) Health Care HVAC 64.0605(2) Health Care Filtering 64.0605(3) Health Care Outdoor Air 64.0605(4) HVAC Pre-Heat Coils	Added specific filtration provisions for health care facilities.      Created an exception for snow melting coils.	Keep    Delete	Not sufficiently covered in IMC.      The modification is not germane to filters.
64.0606(1) DHFS Rule Cross References 64.0606(2) DHFS Rule Cross References	Created references alerting people to other state regulations applying to health care facilities.	Keep   Keep	Refers reader to other applicable state regulations.
64.0702(1) Combustion Air	The IMC does not allow combustion air to be taken from the space around the equipment if the building is of "unusually tight construction". The IMC definition of unusually tight construction describes a building that has the infiltration limited in the same way that will be required by our energy code. The definition of unusually tight construction should be changed to be consistent with previous WI provisions describing when combustion air can be taken from the room.	Keep, but reword to clarify the intent	This change maintains the same relationship between the Wisconsin HVAC and Energy codes as there is between the IMC and IECC. The current WI definition is working now and the HVAC council is reluctant to require all combustion air to be brought in from the outdoors. This change will reduce cost but maintain occupant safety.

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64.0702(2) IFGC Cross Reference	Added a note applying the definition under ch. 65 for “unusually tight construction”.	Delete	Although council recommendation was to keep, the deletion of the definition under Comm 65 results in this note being incorrect.
64.0710 Combustion Air Intake Locations	Added requirement for the intake to be 12" from grade to address snow cover as was recommended for IMC 401.5.	<i>Delete or revise</i>	<i>Redundant with modification under Comm 64.0401(4)(a)2. Possible revision to reference Comm 64.0401(4)(a)2.</i>
64.0801(1) DHFS Rule Cross References	Created references alerting people to other state regulations applying to health care facilities.	Keep	Refers reader to other applicable state regulations.
64.0801(2) Unvented Heaters	Created a prohibition for unvented fuel-fired heaters.	Keep	Although may be redundant with IMC 801.2, the council recommended keeping.
64.0801(2) Cross Reference to Gas-fired Appliances	Created a note acknowledging the prohibition for gas-fired unvented heaters under ch. Comm 65.	Keep, change IFGC section number to 621	Although may be redundant with IFGC 501.2, the council recommended keeping.
64.0900(1) Health Care Upstream Humidifiers	Created provisions regarding the installation of humidifiers within ducts serving surgery facilities.	Keep	Not sufficiently covered in IMC.
64.0900(2) Health Care Types of Humidifiers	Created provisions regarding the types of humidifiers serving surgery facilities.	Keep	Needs to be revised to only indicate the type of humidifiers that are not allowed.
64.0918(1) Intake Openings	IMC 918.4.1-2 specifies the setback between furnace return or outside air intakes and contaminant sources. IMC 401.5 specifies the setback between any ventilation outside air intake and contaminant sources. The two sections specify different setback distances. They should be the same. Also add requirement for the intake to be 12" from grade to address snow cover as was recommended for IMC 401.5.	<i>Delete</i>	<i>Redundant with modification under Comm 64.0401(4)(a)2.</i>
64.0918(2) Intake Locations		<i>Revise</i>	<i>Reference Comm 64.0401(4)(a)2. or delete IMC provision.</i>
64.0918(3) Intake Locations		<i>Revise</i>	<i>Reference Comm 64.0401(4)(a)2. or delete IMC provision.</i>

<b>Wisconsin Modification</b>		<b>Recommendation</b>	<b>Justification</b>
64.1001(1) Installation of Boilers and Water Heaters	Replaced chapter 10 with a reference to ch. 41 for boilers and chs. 81-87 for water heaters. Added back in provisions for “combination-use” water heaters.	Keep	Provide consistency with Boiler Code and Plumbing Code.
64.1001(2) Space Heating Water Heater Listing		Keep	From IMC 1002.2
64.1001(3) Space Heating Water Heater Sizing		Keep	From IMC 1002.2.1
64.1001(4) Space Heating Water Heaters Tempering		Revise (Council had recommended to keep)	From IMC 1002.2.2. This doesn’t coordinate with anything in the Wisconsin plumbing code. With the exception for hospital patient showers and water heater temperature, the plumbing code does not set a maximum temperature for the water distribution system.
64.1101 Refrigeration	Replace chapter 11 with a reference to ch. Comm 45 for compliance.	Keep	The department has extensive standards for mechanical refrigeration systems under ch. Comm 45.
64.1201 Hydronic Piping	Replace chapter 12 with a reference to ch. Comm 41 for compliance.	Delete	Chapter Comm 41 does not address hydronic piping.
64.1300 Fuel Oil Piping	Replace chapter 13 with an informational note referencing ch. Comm 10.	Keep for now	Comm 10 needs to be reviewed to determine if it addresses all of the provisions covered in chapter 13.
64.1500 Adopted Standards	Substituted current editions of NFPA standards, 13-1999, 31-2001, and 72-1999	Delete (1); Keep (2)	The IMC no longer references NFPA 13; and NFPA 31 and 72 editions are the same as in the IMC.